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Perceived need and utilization of dental health care services in Indonesia: A secondary analysis using the national socioeconomic data

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Abstract

Background: Perceived needs and utilization of oral health services are important to ensure improvements in oral health outcomes and to allocate resources for the continuous provision of the services. This study aimed to determine the factors influencing the perceived needs and utilization of oral health services in Indonesia. **Methods:** Secondary data from the 2013 Indonesian National Socioeconomic Survey (N = 260,925) was used. Descriptive analysis and logistic regression were employed to describe the relationship between perceived needs and utilization of oral health services. **Results:** The proportions of Indonesians who had a perceived need for oral health services and utilized the services in 2013 were 1.64% and 2.30%, respectively. A higher probability of perceived need and utilization of dental health care services was observed in the respondents who were <15 years old, females, unmarried, and living in rural areas and in those who had a higher level of education and health insurance. **Conclusion:** The proportions of individuals who presented with perceived needs and utilization of dental health care services were low and were associated with age, gender, marital status, geographic location, level of education, and insurance status. Appropriate strategies and policies are warranted to improve oral health in Indonesia.

Keywords: dental care, Indonesia, socioeconomic, utilization

Introduction

With an estimated population of 249 million in 2013, Indonesia is the fourth most populous country in the world after China, India, and the United States.¹ The prevalence of oral health problems among Indonesians is high, and recent studies have shown a further increase from 2007 to 2013.^{2,3} Oral health problems, such as dental caries and periodontal diseases, have the potential to exacerbate chronic or acute health problems and diminish the quality of life of the individual.⁴ Untreated dental caries and missing teeth have been shown to decrease the oral health-related quality of life of adolescents^{5,6} and elderly.⁷

The rate of oral health problems is influenced by numerous factors, such as low income, lack of access to care, and lack of awareness about the need for such care.⁸ It was also found that oral health status is influenced by the individual's belief, socioeconomic background, number of dental visits, and oral health

behavior.⁹ Furthermore, the levels of anxiety and depression were thought to contribute to oral health outcomes.¹⁰ The oral health condition, such as the presence of caries, gingivitis, or missing tooth, was associated with the use of oral health services.¹¹ A recent study reported that the prevalence of caries was high (approximately 80%) among school children who did not regularly visit a dentist.¹²

The availability of facilities and experts is also found to play a role in oral health outcomes.¹³ The number of active and licensed dentists in Indonesia is small compared with the number of workers in other fields.² According to the World Health Organization, the dentist to population ratio is different between developing and developed countries.¹⁴ In developing countries, the dentist to population ratio is approximately 1:150000, whereas in most developed countries, it is about 1:2000; in Indonesia, the corresponding value is 1:220000. Therefore, the utilization of dental and oral health

services in Indonesia remains low compared with the normative needs for dental care.¹⁵

Another factor that may affect the utilization of oral health services is the perception of a need for such services (perceived need). Perceived need comprises an individual's assessment of the needs or benefits of a matter.¹⁶ Perceived need is a subjective determination of an individual's perception of his/her oral health and the need for services. An individual's assessment of his/her own needs and his/her attention to oral health, along with the level of education, are considered more important than the dentist's judgment in predicting the care needs.¹⁷

The perceived need for oral health care is closely related to the utilization of the service itself.¹⁸ Conversely, a lack of perceived need for oral health services is regarded as an obstacle to the implementation of the service.¹⁹⁻²¹ The utilization of oral health services is an essential parameter in allocating resources for the continued provision of the services.²² Therefore, this study aimed to determine the factors influencing the perceived need and utilization of oral health services among Indonesians.

Methods

The secondary data for this study were obtained from the National Socioeconomic Survey in 2013,²³ which was a pivotal source of the nationally representative social welfare data that helped the government in the planning and regulation of policies across all sectors in Indonesia. Ethical approval was obtained from the ethics committee of the Faculty of Dentistry, Universitas Indonesia. A cross-sectional study was conducted by the Indonesian National Board of Statistics among individuals of all ages throughout the provinces in Indonesia from February to December 2013.²³ A probability sampling with a household analysis unit was conducted (Statistics Indonesia, 2013). The total sample size was 300,000 scattered household units with approximately 1,094,279 people from 33 provinces.²⁴ The data were weighted to ensure that the sample was representative of the Indonesian population.

The Basic Information on Household Members (KOR) and the Health and Housing Module (MKP) self-reported questionnaires were used in this study. The data included the sociodemographic background, such as age, gender, education level, marital status, household income, and health insurance of the individual. Evaluations of perceived need and utilization of oral health services were taken as the dependent variables, which were gathered from the responses to the following questions: "Do you have any of the following complaints in the last 1 month?" (from the KOR questionnaire) and "Have you received a

dental/dental nurse examination in the past 6 months?" (from the MKP questionnaire), respectively.

The independent variables included predisposing factors (age, sex, number of family members, education level, socioeconomic status, and geographical location) and supporting factors (health insurance). Socioeconomic status was divided into five levels (first to fifth quintiles), which were proportioned using the AES.²⁵ The category of quintiles was calculated using the formula $(A + \alpha K)\theta$, where A denotes the number of the adults in the household; K, the number of children in the household; α , the cost of living for children; and θ , the unit of measurement that describes the economic scale of the family.²⁶

The data were included and calculated when all the respondents answered the questions in both the KOR and MKP questionnaires. An analysis of the proportion of respondents with perceived need was conducted based on the selected independent variables to determine the frequency distribution. Data were processed using the Stata software (version 14, College Station, TX, USA). A descriptive analysis was conducted to determine the proportions of individuals with perceived needs and those who utilized oral health services based on several sociodemographic characteristics. Logistic regression (0: no; 1: yes) with odds ratios (ORs) (95% confidence intervals [CI]) and a 5% level of significance were performed to identify the determinant factors related to the perceived need and utilization of oral health services.

Results

Of the 1,094,179 respondents, only 260,925 (23.8%) individuals who answered questions from both the KOR and MKP questionnaires were included in the study. The sociodemographic characteristics (including age, gender, marital status, socioeconomic background, geographic location, and level of education) and health insurance status are presented in Table 1.

The perceived need for oral health services was found to be higher (58.41%) in the low age group (<30 years old) when compared with the other age groups. More than three-quarters of the respondents (77.35%) aged below 45 years old utilized oral health services to a greater extent compared with those above 45 years. Females presented with greater perceived needs and utilized oral health services more often than males. Likewise, the perceived needs and utilization of oral health services were higher among those who belonged to the higher socioeconomic quintiles (Quintiles IV and V) compared with those from lower socioeconomic quintiles. Those who lived in rural areas had a higher perceived need for oral health services than those who lived in an urban area, but opposite findings were observed for the

utilization of the oral health services. Individuals with basic education levels and health insurance presented with higher perceived needs (63.6% and 10.8%, respectively) and utilization of oral health services

(37.5% and 62.4%, respectively) compared with those with higher education levels and no insurance, respectively.

Table 1. Sociodemographic background of the participants

Variables	Respondents (N = 260,925)		Perceived need for oral health services (N = 4,268)		Utilization of oral health services (N = 6,003)	
	N	Percentage	N	Percentage	N	Percentage
Age (years)						
< 15	75,475	28.93	1,604	37.58	2,051	34.17
15–29	58,262	22.33	889	20.83	1,225	20.41
30–44	62,148	23.82	798	18.70	1,367	22.77
45–59	43,508	16.67	663	15.53	993	16.54
≥60	21,532	8.25	314	7.36	367	6.11
Sex						
Male	130,560	50.04	2,007	47.02	2,711	45.16
Female	130,365	49.96	2,261	52.98	3,292	54.84
Marriage status						
Single	117,933	45.20	2,266	53.09	2,989	49.79
Married	126,550	48.50	1,740	40.77	2,712	45.18
Divorced	16,442	6.30	262	6.14	302	5.03
Socioeconomic quintiles						
Quintile I (lowest)	50,167	19.23	772	18.09	1,149	19.14
Quintile II	52,414	20.09	800	18.74	1,204	20.06
Quintile III	52,487	20.12	830	19.45	1,188	19.79
Quintile IV	53,050	20.33	912	21.37	1,207	20.11
Quintile V (highest)	52,807	20.24	954	22.35	1,255	20.91
Geographic location						
Rural	149,148	57.16	2,559	59.96	2,300	38.31
Urban	111,777	42.84	1,079	40.04	3,703	61.69
Level of education						
Lower than elementary school	43,087	16.51	463	10.85	721	12.01
Basic (9 years)	148,901	57.07	2,715	63.61	2,755	46.89
Secondary (10–12 years)	49,153	18.84	827	19.38	1,418	23.62
Higher degree (≥13 years)	19,784	7.58	263	6.16	1,109	18.47
Health insurance ownership						
No health insurance	115,058	44.10	1,708	40.02	2,255	37.56
Had health insurance	145,867	55.90	2,560	59.98	3,748	62.44

Table 2. Descriptive results of all respondents in relation to perceived need and utilization of dental services

Variables	Respondents (N = 260,925)		Perceived need for oral health services (N = 4,268)	
	N	Percentage	N	Percentage
Perceived need				
Had perceived need	4,268	1.64		
No perceived need	256,657	98.36		
Utilization of dental and oral health services				
Meet need	6,003	2.3	221	5.18
Unmeet need	254,992	97.7	4,047	94.82

As presented in Table 2 a very low proportion of the respondents perceived the need for oral health services (N = 4,268; 1.64%). A slightly high number of respondents underwent dental examinations over the past 6 months (N = 6003). Furthermore, among those

who had perceived needs, only 5.18% (N = 221) had received dental treatment (Table 2).

Logistic regression revealed that variables such as age, gender, marital status, socioeconomic quintiles, geographic location, education level, and health insurance were

significantly related to the perceived need for oral health services (Table 3). Similar findings were observed for the utilization of oral health services, except for socioeconomic quintiles. Respondents who were aged below 15 years old, females (OR, 1.13; 95% CI, 1.06–1.20; $p < 0.001$), not single, from a high socioeconomic background, with higher education level, living in rural areas, and having health insurance (OR, 1.18; 95% CI, 1.11–1.26; $p < 0.001$) were more likely to present with a perceived need for oral health services compared with those who were aged above 15 years old, males, single,

had a lower socioeconomic background, had lower education level, and had no health insurance (Table 3).

Respondents who were less than 15 years of age, females, married, educated, living in urban areas, and insured were more likely to utilize the oral health services compared with those who were aged above 15 years old, males, single, had lower education level, and no health insurance. No significant difference in the utilization of oral health services ($p > 0.05$) was observed based on the socioeconomic background of the respondents.

Table 3. Logistic regression analysis of the perceived need and utilization of oral health services

Variables	Perceived need for oral health services (N = 4,268)		Utilization of oral health services (N = 6,003)	
	OR (95% CI)	<i>p</i>	OR (95% CI)	<i>p</i>
Age (years)		0.000		0.000
<15	1		1	
15–29	0.71 (0.66–0.78)		0.77 (0.72–0.82)	
30–44	0.60 (0.55–0.65)		0.80 (0.75–0.86)	
45–59	0.71 (0.65–0.78)		0.84 (0.77–0.90)	
≥60	0.68 (0.60–0.77)		0.62 (0.55–0.70)	
Sex		0.000		0.000
Male	1		1	
Female	1.13 (1.06–1.20)		1.22 (1.16–1.29)	
Marriage status		0.000		0.000
Single	1		1	
Married	0.71 (0.67–0.76)		0.84 (0.80–0.89)	
Divorced	0.83 (0.73–0.94)		0.72 (0.64–0.81)	
Socioeconomic quintiles		0.001		0.764*
Quintile I (lowest)	1		1	
Quintile II	0.99 (0.89–1.10)		1.00 (0.92–1.09)	
Quintile III	1.03 (0.93–1.13)		0.99 (0.91–1.07)	
Quintile IV	1.12 (1.02–1.23)		0.99 (0.92–1.08)	
Quintile V (highest)	1.18 (1.07–1.30)		1.04 (0.96–1.13)	
Geographic location		0.000		0.000
Rural	1		1	
Urban	0.89 (0.84–0.95)		2.19 (2.08–2.30)	
Education level		0.000		0.000
Lower than elementary school	1		1	
Basic (9 years)	1.71 (1.55–1.89)		1.11 (1.02–1.20)	
Secondary (10–12 years)	1.58 (1.40–1.77)		1.75 (1.60–1.91)	
Higher degree (≥13 years)	1.24 (1.06–1.44)		3.49 (3.17–3.84)	
Health insurance ownership		0.000		0.000
No insurance	1		1	
Had insurance	1.18 (1.11–1.26)		1.32 (1.25–1.40)	

Reference categories: <15 years of age, male, single, quintile I, rural, under elementary school, without health insurance. Logistic regression; significant at $p < 0.05$.

* Reference category: do not have perceived need. Logistic regression; significant at $p < 0.05$.

OR, odds ratio; CI, confidence interval.

Discussion

This study was conducted to provide a broader understanding of the perceived needs and utilization of oral health services in Indonesia. Perceived need is influenced by the individual's evaluation of his/her needs with respect to the current status of his/her oral health and the utilization of oral health services.²⁷ In the

current study, only 1.64% of the respondents had a perceived need for oral health services. A previous survey on basic health research reported a caries prevalence and DMFT index of 72.1% and 4.6%, respectively, in Indonesia.²⁸ Perceived need was found to be most prevalent among respondents aged below 15 years old in the present study. This finding is similar to those reported previously in Indonesia and Sri Lanka^{29,30}

and may be associated with the reduced sensitivity to pain in the older age groups. The pain threshold in older age groups (>60 years) is likely to be higher than that in a younger age group.³¹ Furthermore, dental problems among the elderly are less likely to cause discomfort.³² In the current study, females were more likely to have a high perceived need for oral health services than males. Studies have shown that women tend to care more and have a high awareness about their health and aesthetics compared with men.^{15,33,34} In addition, women have a higher sensitivity to pain compared with men.³⁴ Furthermore, unmarried individuals had a higher perceived need than those who were married or divorced in the present study.³⁵ A study reported that unmarried individuals might be more likely to have oral health problems, such as gingival bleeding and dental caries.³⁵ Therefore, they had a higher perceived need compared with individuals who were not single. Contrarily, marriage involvement is regarded as a protective factor for both general and oral diseases,³⁴ although this relationship has not been fully proven. Individuals with basic education levels had the highest perceived need for oral health services compared with those with higher levels of education. This may be related to the high DMF-T index in those with a basic level of education.³⁴ The level of education may play a significant role, as it can affect the health of the individual due to personal health behaviors. It enables the individual to be more aware of his/her health and the availability of resources to make healthy life choices,³⁶ thereby increasing the perceived need and utilization of oral health services.

Only a small percentage of respondents utilized oral health services in the current study. This may be due to several reasons, such as the geographical location, which could lead to difficulties in obtaining information and gaining access to care.³³ Moreover, both socioeconomic status and age may be associated with the high unmet need for oral health services in Indonesia.³⁷ A study has shown that respondents living in urban areas obtained dental care more frequently than those living in rural areas.²⁸ It was reported that the community health center is the most visited in Indonesia compared with other health facilities.²⁸ Therefore, public health services, especially community health centers, play a significant role in improving the oral health of the Indonesian population.¹⁵ The availability of the community health center reduces the barriers to primary health service with reasonable costs for those in the lowest socioeconomic status. The present study showed higher utilization in the urban areas, whereas the number of individuals with perceived needs was higher in the rural areas. A few factors, such as the distribution of community health centers—which may be concentrated in the urban areas—higher level of education among those who live in urban areas, and

difficulties with regard to accessibility in the rural areas, may have influenced the utilization of the oral health services.

Another factor that may contribute to the low utilization of oral health services is the socioeconomic status, in which financial conditions influence the decisions regarding health service utilization.^{37,38} In the present study, those in socioeconomic quintile V (highest) presented with the highest utilization of oral health services compared with those in the other quintiles, although this relationship was not statistically significant. This finding was in agreement with the previous study, whereby the utilization of oral health services was not related to socioeconomic conditions.³⁹

This study has several limitations. First, the type of questions that required “yes” or “no” answers limited the respondents’ choices, wherein a “no” could mean that they did not have any oral health problems or something else that was not explicitly stated in the questionnaire. The second limitation was the possibility of bias based on the distinct reference periods for the two dependent variables in the questionnaire: perceived need variables were based on the past 1 month, whereas utilization was based on the past 6 months. This difference could lead to a discrepancy between the two. However, the utilization variable in this study was more representative of oral care. Furthermore, dental and oral diseases were evaluated based on the severity of the symptoms and the perceived need for treatment. The absence of a perceived need for oral health services could be related to the absence of pain and the respondent’s subjective assessment that the teeth and mouth did not require clinical treatment, although a clinical examination might have concluded that the person may require treatment.

The perceived need influences a person’s health behavior, including that regarding the seeking of health services and the individual efforts to maintain health.¹⁸ It is a useful measurement owing to its relationship with dental care utilization.⁴⁰ This approach can provide more realistic estimates, given that individuals who do not perceive the effects of their oral conditions may not seek dental and oral health services.⁴¹

Conclusion

Based on the results of this study, the perceived need and utilization of oral health services in Indonesia were found to be low in 2013. A relatively high number of individuals presented with unmet needs. Socioeconomic and geographic barriers still remain in Indonesia. Therefore, this study will be an eye-opener for the government and all sectors and help them overcome these obstacles and barriers. Practical and appropriate

strategies and policies have to be implemented to improve oral health in Indonesia.

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Conflict of Interest Statement

None declared.

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